2: Jochelson E-5 (1884-1902) 1933 Yakut

137 Yamsk on the Okhotsk Sea. The northern limit of the aspen (*Populus tremula*) is along the 68th degree of latitude.

Fauna

136 Only a few species of land mammals are represented in northern Siberia. The genera are exclusively of holarctic types, found in both Arctic America and Asia, but in more or less differentiated forms on the two continents. There is unquestionably a close relationship between the forms of boreal mammals inhabiting the two continents—a relationship so intimate that it could only have been brought about through a land bridge formerly connecting the two areas.

About forty species occur in northern Asia. The brown bear (*Ursus arctus*) is particularly numerous in Kamchatka. The polar bear (*Ursus maritimus*) rarely visits the continent, as it lives on the islands, or else on the ice floes of the Arctic. Wolves (*Canis lupus*) keep to the open plains where they hunt reindeer. Red, gray, and dark foxes (*Canis vulpes*) are found everywhere, on the tundra, in the mountains, and in the forests. White and blue Arctic foxes (*Canis lagopus*) are typical tundra animals. Of the smaller carnivorae, the ermine (*Mustela erminio*) and weasel (*Mustela vulgaris*) may be mentioned. The squirrel (*Sciurus vulgaris*) lives on trees and is absent in the tundra. In the forest zone the flying squirrel (*Pteramys*) is also found. Another rodent is the polar hare (*Lepus timidus*) which occurs in great numbers.

To the north of the Verkhoyansk Ridge three species of fur-bearing animals have been completely exterminated by hunters. These are: the sable (*Mustela zibellina*), the wolverene (*Gulo borealis*), and the lynx (*Felis lynx*). The otter (*Lutra vulgaris*) is also rare.

Of the cervidæ, we find the elk (*Cervus alces*), reindeer (*Cervus tarandus*), and, in the mountains, the musk deer (*Moschus moschiferus*). In some of the mountains occurs another ruminant, the mountain sheep (*Ovis nivicola*). In northern Siberia are also found: the Pallas ground squirrel (*Entamios asiaticus*), Siberian marmot (*Arctomys*), and Siberian spermophile (*Citellus*). There are several species of black and red-backed mice and lemmings. The author found, according to the determination of the late Professor J. A. Allen, two new species: the Kolyma red-backed mouse (*Evotomys Jochelsoni*) and the Kolyma pike (*Ochotona Kolymensis*).

Sea fish which ascend the rivers in spring and summer from the Arctic Ocean differ from the fish of the Okhotsk and Bering seas. While the fish migrating from the Arctic Ocean consist chiefly of *Coregonidae*

2: Jochelson E-5 (1884-1902) 1933 Yakut

(*Coregonus leucichtys, C. Omul, C. Muksun, C. clupoides*), the chief catch of the natives on the shores of Okhotsk and Bering seas consists of salmon of the genus *Oncorhynchus;* the dog salmon (*O. lagocephalus* or *O. keta*), the humpback salmon (*O. proteus* or *O. horbusha*), the red salmon (*O. lycaodon* or *O. niarka*), the chawicha (*Salmo orientalis*), and some others. With the migrating fish coming from the Arctic Ocean belong also the starlet (*Acipenser ruthenus*) and the sturgeon (*Acipenser sturio*).

Many coregonidae and other species of fish live continuously in the Arctic rivers and in the numerous tundra lakes.

Population of the Polar Region

The population to the north of the Verkhoyansk Ridge is very small. This region has only 0.01 man to a quadratic mile, or 1 man to 100 square miles. Settlements are confined to the river valleys and the shores of large lakes abounding in fish. The tundra dweller of Siberia seldom settles on the seacoast or on the adjacent islands, as do the American Eskimo. Since off shore the sea is quite shallow the hunting of sea mammals has not been developed; for instance, the ocean between the mouth of the Kolyma River and the Sviatoi Nos to the west is only seven meters deep at a distance of ten or twenty miles from shore. West of the Chukchee are no sea-going peoples and no skin boats. Late in the fall, when snowstorms begin to rage on the tundra, the nomadic natives wander southward to the protection of the forests.

The Chukchee and Yukaghir are regarded as indigenous tribes of the region. The Tungus were forced to the Arctic region when the Yakut, migrating from the south, occupied Yakut Province. In their turn, the Yakut crossed the Verkhoyansk Ridge when the Russian conquerors invaded the Lena country and were followed to the Arctic region by Russians who settled at the mouths of the rivers. The climate is unfit for agriculture, but the Yakut introduced horned cattle and horses. Cattle-breeding, however, also encounters many obstacles: the grasses are of poor quality, the haying and fishing seasons coincide, and for nine months of the year the soil is covered with a deep layer of snow. In spite of the abundance of fish, famines are frequent, owing to lack of cooperation, methods of conservation, and foresight. The basic economic foundation of Arctic Siberia is the domesticated reindeer. The Yakut, as well as all the other tribes of the region, both aboriginal and immigrant, are endeavoring to acquire the reindeer, an important factor in their welfare.

2: Jochelson E-5 (1884-1902) 1933 Yakut

sasyltumsa, meaning fox's nose. On the left side of the coat is attached the strike-a-light (*xatat*) (see Fig. 36) with a leather bag for tinder (*kyalyk*); the cover of the pocket is decorated with a silver ornament. Also attached to the coat are the *iskax*, small pincers with which women pull out their pubic hair, and *sabaska*, a little wooden calendar. In addition to the silver pendants and bead decorations the coat is embroidered in silk. All the pendants on the left side of the coat are called *ottuk simaha*.

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Fig. 36 (70-8633). Steel for making Fire.

The back of a rich woman's *sanayax*, black cloth decorated with silver embroidery, is illustrated in Fig. 37. The collar and skirt are covered with the valuable sea otter fur. The border of the skirt and its slit are trimmed with lynx. The silver embroidery, is, I believe, not original with the Yakut but is an adaptation from Russian art.

Some additional women's *sanayaxes* in the Museum collection merit description. A decorated coat of a fôalskin with the hair on has a skirt trimmed with lynx. Above the trimming is a checker work strip made of alternate black and white squares, the white of horse legs and the black of horse and cowskins. On the back is appliquéd a figure made of lynx and *tarbagan* (a kind of marmot—*arctomys* spec.) skins. This, called *kybytya*, means a wedge, but the figure is in the form of outstretched wings (Fig. 38) and, according to the Yakut, symbolises the shoulder blades and has a magical significance.

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Fig. 37 (70-9068). Back of a Highly Ornamented Coat, the Type worn by Rich Women. The decorative motives are embroidered in silver thread.

The preference for *tarbagan* as coat material, says Sieroszevski,[1] originated evidently in their former abode in southern Siberia. In their present territory *tarbagan* is lacking. But Baron Toll[2] saw this animal to the north of the Verkhoyansk Mountain Ridge as did the writer in various parts of Yakutsk Province.

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[1] Sieroszevski, *ibid.*, 335.
[2] Toll, E., *Beiträge zur Kenntnis des Russischen Reiches*, 100.

9: Stadling--85 E-3 (1898) 1901 Yakut
116, 136

"As a rule, the lakes and rivers abound with fish, while in the forests are to be found elk, reindeer, fox, sable, etc., and in the north a species of bighorn or mountain sheep. In spring the country teems with birds of passage."

11: Lansdell--295 [2] M-3 (1879) 1882 Yakut
116, 136

"In the forests of the Vitim and Olekma are caught the smallest sables, with the finest, blackest, and hence most valuable furs. The squirrels of the district are hunted only in winter, when they are sometimes black and sometimes bright grey, their fur in summer being red, the hair loose, and skin valueless. The black realize the highest price, and are frequently met with south of the river, while north of the Lena none but grey are captured. The hunters think that this difference depends upon the nature of the forest."

24: Wrangell--292 G-3 (1820-23) 1842 Yakut
116, 136, 226, 233

"The people about Werchojansk are Jakuti, and their chief occupation is the care of cattle, to which the hilly country and the milder climate of the sheltered valleys are very favourable. There is also much less snow here than in other parts of northeastern Siberia, so that the cattle can be left out in winter, and find sufficient pasture. This is the more important, as from the very dry summers the growth of grass is never such as to afford a good stock of hay. There are, generally speaking, fewer lakes abounding in fish than in the Kolyma district; but some of them are so full of small species of fish about two inches in length that they may be scooped out of the water with buckets. These little fish, which are preserved for the winter by being frozen, furnish a very good article of food, pounded and boiled with the finely-grated inner bark of the larch-tree. Hunting is much followed: hares and grouse abound, and the country is rich in fur animals; elks, reindeer, black bears, wolves, musk deer, red foxes, ermines, wolverines, and squirrels of the most valuable kinds, are all numerous; but black foxes are rare, and sables are not found here. The musk deer (moschus moschiferus), called here kabarga, must be abundant, as a pound of musk is commonly sold for no more than from ten to fifteen roubles."

46: Cottrell--114-116 T-2 (1840) 1842 Yakut-1-2
116, 133, 136

"In this part [RCH: in the district around the Kolyma, Anyui and Indigirka Rivers] of the East Siberia, vegetation ceases at the 70th degree of north [115] latitude. All is tundra and moss beyond this; but the lakes are larger and more numerous, and the marshes stretch far and wide. There is one of these lakes called by the Yakuts tastakh, which signifies full of stones, remarkable for a quantity of bituminous wood which it throws up. In it are found pieces of petrified rosin, quite clear like amber, and sometimes containing insects incrusted in them. It seems, however, to be lighter than amber, (we have some specimens of it,) and when burned, has not the agreeable smell. Great quantities of wild-fowl have their haunts here, among them two sorts of wild-geese not common in other places: one, smaller than the grey wild goose (férus) is quite white, except the tips of the pinions, which are black, and the foot and tibia red. The other is quite black, and called in Russian némok, because it utters no cry in flying: it is the size of a large wild-duck, but in form more round. Two sorts of swans only are found here, one large and one small. The large one always builds in the woods off the tundra; the little one always on the tundra, where there is no wood. There is a curious little snipe (Tringa lobata of Linaeus,) the size of a sparrow, and web-footed, so as to be able to swim. It is also found in the Barabinski Steppes. The brigand gull

(Larus parasiticus) frequents these parts, but no others in Siberia. The white partridge (Tetrao lagopus) and white owls, are the only birds (not water-fowl) that winter here. The great elk (moosdeer of Pennant) pastures on the borders of the tundra, but never leaves the woods. They are very large, one of a year old being the size of a horse. The argali (Capra Ammon) are found on the east of the [116] Kolymá, as well as on the southern frontier, and mountains within the Chinese territory."

46: Cottrell--139 T-2 (1840) 1842 Yakut
116, 136, 825

"The flesh of the gelinotte, or white partridge, very common in all the northern parts of Europe and Asia, is of a much whiter colour than that of any other sort of game. These people imagine they know why it has monopolized so much of this whiteness, which other birds possess in such small quantities. Their belief is, that it was formerly one of the largest birds in creation, and that being very proud of its size and force, it yielded to no creature in rank and consequence. One day in its flight it met the Tang-ara, one of their divinities, in mid-air, and being of a large size, it would not make way for the god, and as a mark of contempt, brushed him with his wing in passing. To punish this arrogance, its white fless was immediately distributed among all the other birds, and from that time it has only been of the size we now find it."

Y /129 cont./

122 In another respect too the region was livelier. Countless
123 flocks of geese and gagáren (Colymbus) were startled by us.
●136 The former flew up by the hundreds amid a frightful shrieking and
291 beating of wings, while the loud voices of the latter, almost
237 reminiscent of children's cries, resounded continuously through the quiet region. The gagáren, of which there are three species on the Tunguska, but we saw only two of them on the Olenék, taste oily, but are nevertheless eaten by the natives. Caps are sometimes made out of the pretty violet velvet-like down of the neck; indeed, in Turuchansk /Turukhansk/ I even succeeded in buying an overcoat, besides a cap, to be sure for the relatively very high price of 50 rubles, which /130/ were shown great approval everywhere because of their peculiar beauty. Very light and also keeping off the rain very well, this feather coat warmed one excellently, so that I can strongly recommend it, especially for ladies. In Europe where the gagáren also occur, it is said to come on the market occasionally, especially worked into muffs.

Y
122 Beside geese and gágáren, gulls were also common, but
136 only one species, with white neck and head, whereas on the Tunguska we had found several species. We more rarely saw swans, ducks, and cranes, and one bird not present along the Tunguska, called gäscha here, from afar very similar to our common stork, white with black wing tips -- probably it is a
T kind of crane, Grus leucogeranus, of which the cry is also
[825] reminiscent. Smaller birds appeared in noisy flocks, perhaps already proceeding on the homeward journey, and an owl was killed, which, it seems, is rare here, since we had seen only two specimens from the Tunguska on, while there is certainly no lack of other gangs of robbers on the rocks, in particular a
Y kind of falcon called térne by the Tungus.

122 Upon closer acquaintance our guide Boldonó thawed out
123 somewhat and related a little about the region, but obviously not all that he knew by far and, as we learned later, much that was false, deliberately however. Otherwise he was obliging and in particular supplied us daily with fresh fish, which, along with geese, which were now also frequently caught,

/136 cont./

122 case of death, to take care of the burial, as well as the family
123 and the many herds of reindeer, which, as Ignátij had told us earlier, belonged to a rich Jakuten in the Wiljuisk /Vilyuisk/ area. Whether the poor man saw his people again we have not been able to learn. At the first leavetaking from Filípp he called after him that he was going very far and he was to tell that to his family. He was not thinking of the journey to the other world: he was at that time vigorous and healthy and was happy with us.

We were now again without a guide, provided only with the names of the most important rivers awaiting us and a few suggestions for recognizing them. /The remainder of p. 136, pp. 137-138, and the first paragraph of p. 139 are omitted in the translation; see the foreign text. Page 139 continues as follows./

As our previous guide had told us, we found the Jakuten /Yakut/ Christofór on the Hoppó River. When we saw the smoke from his hut, we cautiously landed at some distance and sent the two Tungus ahead. They learned from his wife that he would soon come. He did in fact appear before us after some time, probably only because fortunately one of the Tungus was still present upon his return. He could not sell us any reindeer at all. In order to serve us as a guide he would have to make a few arrangements at home and went back for that purpose, unfortunately without an escort. When soon afterward we sent Sseliphón after him, he had fled with his wife, "kept his name" (pominaí kak swáli), say the Russians, and we had again had a completely useless delay, for I had long ago completed my observations. There are indeed no human beings here, but rather wild reindeer (wssjo rawnó bujúny), said Golé quite furiously in his broken Russian.

122 Without a guide and, what particularly annoyed us, also
• [136] without fresh meat, we had to travel on. In view of our rapid journey, hunting and fishing could provide little, especially since Golé had broken his principal weapon, the trident, on a stone. Only once did we succeed in killing, out of a flock of ten ducks (Anas glocitans, called moklók on the Tunguska),

/139 cont./

122 six of them with four shots. The animals flew up after each
[136] shot and came down again a few steps away, without taking
[223] any notice of the approaching hunters. This fearlessness of the animals, which is in direct contrast to the timidity of the human beings, is probably to be explained by the fact that the Jakuten /Yakut/ /140/ do not regard it as worth the trouble to squander precious powder on bird game.

Our longing for some change of scenery was finally satisfied on August 29, in that the river, over half a verst wide, made two bends, which in a few hours of travel twice brought
[114] us around almost three-quarters of the wind rose. The topographer who had accompanied us the previous year would have been greatly enchanted by these topographical beauties (he feared that his colleagues in Irkutsk would scarcely believe that the Tunguska made such great bends), but we were certainly not, for the attainment of our journey's end was seriously endangered by these caprices of nature.

/141/ Seventh Chapter

100 The Jakuten /Yakut/ become more amiable. -- The iron Jegór and his statements. -- Bad weather. -- Northern vegetation. -- Falcon hunt. -- Unreliability of the Jakut statements. -- Beyond the 70th degree of latitude. -- Onset of winter. -- Icebound. -- Concerning the winter quarters. -- Message to Bulún. -- Internal affairs of our household. -- The fauna of the Siberian north. -- Freezing of the river. -- The local reindeer. -- Further travel on foot. -- Help in need. -- The Chatýgin family. -- Sachár O'ssipowitsch Rjeschétnikow. -- A Jakut balagan.

122 On August 30, not far from the little river of Ssukána, we
123 again came in sight of a human habitation and, to be sure, one still inhabited now, as we could see by the reindeer grazing in the vicinity -- we passed old. dilapidated huts several times a day. The call of our Tungus was soon answered. First a man and then a woman came down to the

Y /157 cont./

122 The Jakute /Yakut/ who had received the letter from Stepán's
123 brother and sent it on to the community elder (starschiná) came to look us up himself, undoubtedly with the completely justified /158/ hope of a good tip. His narte too was of great help to us, since our baggage simply could not be accommodated on five narten, and even on six only in an emergency, and therefore Golé fashioned a small hand-sled for himself.

Y
● 136 I must note that the reindeer of this region were decidedly
122 smaller and weaker than those that brought us from the Tunguska to the Olenék. The reindeer of the Tschuktschen /Chukchee/ are still smaller, as Middendorff says. We had heard from Baron Maydell and Dr. Neumann, who had been in Tschuktschen country a few years ago, that it is difficult to find reindeer bucks strong enough to carry a man, but this was not confirmed along the Tunguska, for a considerable number of our reindeer could carry Czekanowsky and
Y me with ease, to say nothing of one of the Tungus, who are usu-
[492] ally much smaller and more slightly built. But even here on the Olenék it might be difficult to round up suitable riding animals, and this is probably the chief reason why the people here, as well as in Tschuktschen country, travel almost solely on narten, while
T along the Tunguska they ride almost exclusively.
122 On the day of our departure there was still enough to do; Stepán took possession of the well-sealed things remaining behind, then made as many notches on a piece of wood as there were individual packages, pressed two seals on it, and then broke the wood
T together with the seals. Stepán kept one half, and we took the
Y other one with us, and Stepán was supposed to deliver the things
[186] only to the one who showed him this half. Precautionary measures
[685] enough, but we were still somewhat concerned about the safety of the provisions in particular, for Stepán suspiciously spoke a lot about mice, which often steal the supplies, Tungus robbers, /159/ who supposedly break into the chambers, and more of the same. From all these little was to be feared, much more from Stepán and his family themselves, although the latter, during the whole time, had received enough from us and was also generously given presents on the last day. /The remainder of p. 159 and the first paragraph on p. 160 are omitted in the translation; see the foreign text. Page 160 continues as follows./

/183 cont./

226 on it was presented to us, caught both by our men and by the natives. Perhaps it is the fish found in the lakes of the Jenisseí /Yenisei/ tundra and called mutschugór there (actually, we once heard it called that on the Olenék), which the academician Schmidt mentions from hearsay and which is very highly prized there. It has pale pink, almost white flesh, is very fat, and is barely two feet long. Along the Lena the Russians call it tschir, but it is hardly identical with the Jenessei fish of this name.

[439] Fish do not represent a trade article here, but are caught by the natives only for their needs. Fishing is said to have been
262 not particularly productive this year, but no shortage was to be seen. Our two Tungus, with the abundant fat fish set before them in every possible form, even forgot their native crucian, for which they had longed during the whole trip, and even the unheard-of happened when old Golé refused an evening meal because he could not eat any more. Raw fish in particular, frozen hard, cut in chips, and taken without any condiments, usually even without salt, is a favorite dish, which, incidentally, in Irkutsk, where it is known by the name struganína, has its devoted admirers even in higher society. I myself could not acquire a taste for it.

● 136 Apart from fish, however, the coast here is very unproductive. No one was able to tell us anything at all about larger sea animals. /184/ A seal was supposed to have been killed some time ago as a rarity. Polar bears do not seem to be common either and are not hunted by the natives, who rather have a great respect for
223 them. In summer there is a surplus of water birds, which are captured in great numbers, especially during the molting season. We were also told of such, about the size of a small goose, that come, not from the south, but from the north, from the sea. Since something similar is reported by almost all the travelers who have visited the Siberian shores of the Arctic Ocean, the fact
224 cannot be doubted. Wild reindeer are present in abundance -- we saw a large herd on our trip through the tundra -- and are killed in various ways, but especially with springtraps. Many hares are found in the immediate vicinity of the ocean. The arctic fox, however, constitutes the real wealth of the natives here. It is very common on the tundra and is predominantly

/195 cont./

122 man who had just returned from the Arctic Ocean. Most of the visitors appeared with gifts, of which, however, we accepted only just what we needed, for /196/ appropriate compensation, of course. One of the visitors brought a reindeer and received for it generous payment in cash, which he apparently had not counted on, for he became very embarrassed and finally explained that in this case he wished to exchange the animal given for a larger and fatter one, which, of course we could not oppose.

On the day after our arrival the clergyman from Bulún, Nikolai Ssljepzów, also visited us, and we spent a very pleasant evening with him. He told us a great deal about his travel adventures on the tundra, which he frequently had to cross. The dangers for the intrepid traveler are great -- not the least is the danger of getting lost. Once, just when his traveling companion had gone off, the clergyman was suddenly thrown out of the narte by the dogs, suddenly excited at the sight of a wolf, and he was saved only by the intelligence of the lead-dog who forced the rest of the team to circle the place of the accident closer and closer until he had again found his master and brought the dogs to a standstill near him. He would have been hopelessly lost, without any food, without a compass, hundreds of versts from any settlement. Our guest was also able to give some much desired information about the natural products of the parts of the country traversed by him, and Czekanowsky was particularly pleased by the accounts concerning several sources of petrifactions along the
● [136] Lena and the shore of the Arctic Ocean; the clergyman even claimed to have frequently seen ammonites, which we could show him in illustrations. Encouraged by us, he promised henceforth to collect natural products himself, as much as he could, for which we gave him a short course of instruction and asked him to send his eventual collection to the Siberian Section of /197/ the Imperial Geographical Society in Irkutsk. On the next day he sent us a young shark which he himself had caught near Bulún, that is, in the river.

632 Bulún, as I have said several times, is at present the capital
[103] of an entire district, or, as one says here, ulússes /ulus/, which, however, is still named after the former capital Shigánsk /Zhigansk/
[226] On the maps the latter is even designated as a town, but it is now
[439] practically abandoned. Bulún, which lies only about 120 versts

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632 from the Arctic Ocean, owes its present importance less to the rich
[226] fishing, which could be made useful for the more southerly regions
[439] only by the establishment of a steamship company like the one on the Jenissei /Yenisei/, and more to the trade in arctic foxes and in particular in mammoth tusks, which are collected here from the entire region and then taken to the European market by
• [136] way of Jakutsk /Yakutsk/ and Irkutsk. Fossil ivory is found throughout northern Siberia, although the richest sources are supposed to be the New Siberian Islands in the Arctic Ocean, but the trip there across the frozen ocean involves great difficulties and dangers, and we were even told that the government had prohibited trading trips there after a party of ivory-seekers perished on one.

161 According to the more detailed reports gathered by
131 Czekanowsky on his second stay in Bulún, the population of the entire ulússes consists of 2,293 souls, 770 of whom are counted on the stretches of the Lena lying within the forest region, 30 in the forest region along the Olenék, while about 550 live on the timber line itself between the Lena and Anábara, and /198/ over 900 live on the tundra, and, in particular, on the islands at the
131 mouth of the Lena and the Olenék. These people, consisting of
177 Jakuten /Yakut/, or rather Jakutized Tungus, are cut off on all sides from intercourse with other human beings by broad, barren stretches scarcely traversed by a hunter, certainly to their advantage -- I have spoken above, in the description of our sojourn in Boljkalák, of the inhabitants' purity of morals -- may it be preserved here a very long time and may more active intercourse and the cultural advance connected with it exert only a whole-
426 some influence on these upright primitive people. Up to now --
273 at least so we were assured -- the natives strictly guard against running into debt with the merchants, and liquor, this plague advancing in the train of civilization and so corrupting for all primitive peoples, seems to be relatively not very widespread
273 here. I must mention here that the government does not permit, or at least permits only under great limitations, the sale of spirits to the native tribes of Siberia, as well as to the workers at the gold washings, but, in view of the immense tracts of land to be

/206 cont./

231 343 the latter an atmosphere not exactly very pleasing to a European, particularly when a few pet animals are brought nearer to the warm stove and therefore also nearer to the astonished traveler. The effort expended is well rewarded, however, and the cows here are praised for their abundant milk. They were acclimatized here only about eight years ago by Martin Borogón, but by no means represent, as we were inclined to assume, the extreme outposts of their breed in the north, and, on the contrary, as we were told here, cows -- not to mention horses -- are said to be raised with considerable success by the merchant Ssánnikow even in Ustj-Jansk, that is, at about 71° latitude and on the shores of the Arctic Ocean, to which the good pasture there is said to contribute the most. According to the view of our host, cattle raising would even be profitable at the mouth of the Lena, because there, too, excellent fodder is to be found -- the alpine pastures are indeed famous; why therefore should not the tundra pastures so similar to them, albeit much poorer, also be useful for dairy cattle? It could be determined by trying it. The mouth of the Lena is likewise inhabited by Jakut-speaking tribes, which, however, as I have already said, are actually of Tungus origin. Could this be the reason that, in comparison with the true Jakuten /Yakut/, which we had before us here in Dshejelák-Dshaná, they had less energy, particularly with regard to the livestock-raising brought by the Jakuten from their original southern homeland? The unsuccessful acclimatization attempts made by the Russians along the Lena may perhaps be attributed to the unfavorable location of the place -- the /207/ vicinity of Ssiktjách, for example, seems in fact to be unsuitable for raising livestock.

• 136 We learned a great deal more this evening about the fauna of the country. Only foxes are commonly found here, and in the neighboring tundra arctic foxes and reindeer, as well as hares and ermine. Squirrels, although of good quality, are not plentiful and therefore do not represent an article of trade; with regard to other fur-bearing animals, the sable is not found at all and the glutton only very rarely; as for beasts of prey, only an occasional wolf that comes over from the mountainous parts of the tundra; bears, on the other hand, are completely unknown. We were interested in the news that elk were found here only 15 years ago,

/207 cont./

136 but since then have completely disappeared. They are therefore also retreating southward here just as along the Nishnaja /Nizhnyaya/ Tunguska. The wild sheep (tschubukún) found farther south in the Werchojansk Range had been heard of, but they are not found here even in the rockier parts of the tundra, although there, as well as here, marmots (tarbagán) are very common.

226 439 Our host also engaged in fishing with great success at the mouth of the Omoloí, the yield of which -- mukssún, o'mul, tschir, and néljma -- except for what he uses himself, he for the most part exchanges for furs in Ustjjansk /Ust-Yansk/.

122 13 On the next day we continued our journey almost due south and passed a very populous balagan, which was named for us as Iggitauýt, as well as several tributaries of the Great Omoloí, which lies to the east of the Little Omoloí which we had already crossed. We were told that the region abounded in swamps and lakes that were full of fish; the forest, although somewhat taller than that of the previous day, was still very poor in comparison with that found at the same latitude along the Olenék, alternating with great tundra-like plains. In general, it seems as though in the far north the /208/ extensive plains are not favorable for forest growth and that it remains relatively vigorous only in the more uneven terrain even up to very high latitudes. In the afternoon we reached the stan Dshüssál on the lake of the same name, where I decided to make some astronomical observations because of the exceptionally mild temperature of barely -20° R., according to which we were at 60° 38' latitude.

On our further travels the next morning we were surprised after a short trip along the shore of the Omoloí in the vicinity of the settlement Ojóma by a little grove of poplars (Populus suaveolens Fisch.). This poplar, according to the natives, reaches its northern boundary here, but has such small trunks that they are unfit for working. On the day before we had noticed many 133 willow thickets in all the river valleys that we crossed. From 122 Ojóma on a broader view of a quite considerable mountain range

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133 122 taking in the whole southern and part of the eastern horizon, over which our route was to take us, opened up before us -- the Kullár Range, which, running in a northeasterly direction, seemingly parallel to the Chara-ulách Range, forms the watershed here between the Omoloí and the Jana /Yana/ basin. Although both the Kullár and the Chara-ulách ranges are probably only spurs of the main watershed between the Lena and the Jana, whose collective name, however, we could not discover, their appearance here is very different. Instead of the frequently picturesque, jagged, often conically-shaped peaks of the Chara-ulách, here we saw only massive rounded heights with steep [137] slopes and broad flat valleys in between. After we had traveled about five versts from the Omoloí across a completely unwooded plain, we reached the /209/ foothills rising steeply, but not high, and covered with woods, and finally, after another six to eight versts, the completely treeless heights of the mountains; in the valley of an insignificant tributary of the Omoloí, the Kylagóttu, we reached the altitude of the pass, which rises at least 1,300 feet above the Omoloí and is topped by the surrounding peaks by another 400-500 feet. [136] [192] Here, by the way, we saw only a lower part of the range, which is said to reach much greater heights in the source area of the Omoloí, which is to be seen merely from the fact that wild sheep (tschubukún) are said to be found there in abundance, while they are still absent here.

122 13 Directly after the watershed we reached an insignificant brook, Kargýchala, already belonging to the Jana basin, down whose broad valley, running southwest, we soon reached the little river Tass-Apká and the stan of the same name, which was to serve as our lodging for the night. The southern slope of the Kullár Range is considerably less steep than the northern slope; on the other hand, the tree vegetation on the latter is more vigorous and goes up farther, probably likewise evidence that the climate becomes milder toward the shores of the Arctic Ocean, which was also shown by a comparison of the temperature observations in Ustjjansk /Ust-Yansk/ and Werchojansk /Verkhoyansk/, as well as the completely unanimous statements of the natives.

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122 After a seven-hour trip -- the distance could at most amount
● 136 to 45 versts -- we reached the station of Bodogóle, where the inhabitants told us something about the hunting here. Concerning big game here, there is first of all the common mountain sheep
[321] (tschubukún), whose meat is said to be very tasty. The skin is also highly valued and carved work is made out of the horns; /239/ we saw only a few small spoons very simply worked. The elk is found everywhere; on the other hand there are hardly any beasts of prey at all, at least no wolves, which are found only to the north from the mountains to Kŏng-urách, but then are completely absent as far as Jakutsk /Yakutsk/; the glutton, whose pelt is eagerly sought by the Jakuten /Yakut/ for fur caps, is found only very rarely; as for fur-bearing animals, there are many squirrels (also flying and striped ones) and ermine, and, it seems, sable.

122 Below the station of Bodogóle the mountains west of the
[133] route become lower and eminences covered with forest appear. To be sure, on the right bank of the river Antimirdjách one again sees barren peaks, but they soon recede and the range then disappears altogether. Once again on this day, at the end of a very wretched trip, we had to resort to a log house built in exactly the same style as the one of two days before. The local name for these houses is powárnja, i.e., kitchen. Although this powárnja had been built only a few months ago, it was almost of even less use than the earlier one, and again we had to sleep in our traveling clothes. Fortunately it was for the last time, for the day's trip of December 5 brought us to the station of Tánda, which lies on the left bank of the Aldán, and from here on a more densely populated
439 region begins. Before we reached Tánda we met the Jakutsk
484 merchant Gawriíl Feofánow Ssolowjów with his entire caravan, who likewise carries on trade with Kolýmsk, although not directly, but rather by way of the settlement Rússkoje Ustje (i.e., Russian river-mouth) on the Indigírka. We were interested to learn from him -- we had stopped at a yurt along the way -- that he had formerly sent regularly organized expeditions to the New Siberian Islands, which had brought back to him rich booty in mammoth tusks. He had /240/ not undertaken any for many years because

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439 Trade has fallen off significantly in recent times and the days of glory are chiefly over for Jakutsk /Yakutsk/, since trade between here and Ochotsk /Okhotsk/ has entirely ceased as a result of the flourishing of the southern Russian ports on the Pacific Ocean. Whether the opening of the northeast passage by Nordenskiöld will direct the trade of Jakutsk into new channels /249/ remains largely undecided, but nevertheless much could be done to encourage trade by a regular steamship route on the Lena up to its mouth, which did not exist in our time and has not been established since then, as far as I know. The river itself would present few difficulties, fewer than the Jenissei /Yenisei/, and they could surely be removed entirely with relatively little cost. The excellent fish at the mouth of the Lena, to give only one example, are consumed almost entirely on the spot by the few inhabitants there, a very minimal part goes to Werchojansk and Jakutsk, but no farther, whereas the mouth of the Jenissei supplies a large part of Siberia, and, I believe, also the northeastern part of European Russia with smoked and salted fish of the most varied kinds -- I have even eaten these in St. Petersburg, to which, however, they are probably sent only exceptionally.

●136 As I have said before, the most active time for trade
439 is summer, at the beginning of which the barges come down the river with all the necessities required, and especially European goods; soon afterwards the merchants from the north also appear here, chiefly with mammoth tusks and furs. Now, in the winter, great scarcity prevailed and only the absolute necessities were to be obtained. For example, the combined efforts of the governor and the chief of police could not round up a few bottles of porter for us, even in private homes, when they accidently learned that we had a desire for it. A bottle of pale ale was the sole result of their quest. On the other hand, there seemed to be no shortage of champagne, and quite good champagne, to be sure, just as everywhere in Siberia, but at the time it cost eight to ten rubles a bottle.

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• 136 Furs were also relatively expensive and difficult to procure. I paid 22 rubles for a truly very beautiful silver fox (ssiwodúschka; the blacker and more expensive ones are called tschórno-búrije lissízi, the wholly black, very rare ones, tschórnije), 15 rubles for one not quite so good, which showed a few reddish parts in the wool hair, whereas the corresponding prices on the summer market were supposed to be about 15 and 9 rubles. For 20 rubles I bought a fine cap sewed together out of black fox paws (for a so-called boyar cap). We were also offered true beaver skins (Castor fiber) from Kolýmsk, which, since they were shown to us frozen, we were inclined to take for calf skins, but we were told that the long red hair would later be removed and that the skin would then have its usual appearance. It is true that beaver is still found in the Kolýmsk district, but many skins that come on the market under the name of Kolýmsk may have been traded by the Tschuktschen /Chukchee/ and come from America.

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171 I should like to note here that in Europe various skins come on the market under the name of beaver. The most expensive so-called beaver, called kamtschátskij bobjór in Russia, i.e., Kamchatka beaver, is actually not beaver at all, but a sea animal -- the sea otter (Enhydris marina), which is found only in the northern part of the Pacific Ocean and is becoming extinct even there as a result of its completely unregulated capture, at least in former years. The skin, almost black in color, velvet-like, and covered with gray overhair, is one of the most beautiful and highly prized furs, and a good skin is supposed to bring a couple of hundred rubles on the spot. The true beaver (Castor fiber), which formerly was found almost throughout Europe, Asia, and North America, but now /251/ occurs in only a few places in Europe and mostly on preserves there, just as it has also almost died out in Siberia and is still captured, as was said, only in the district of Kolýmsk and, in addition, in North America, has a very poor-looking skin, which in Russia comes on the market under the name of njemétzkij bobjór, i.e., German beaver. In addition there

136 /251 cont./
171 are many other more or less similar kinds of skins sold as beaver skins -- they are called false beaver.

132 Before I acquaint the reader in the following with the most interesting results of the local agriculture, I must first tell him the monthly mean temperatures for Jakutsk /Yakutsk/, derived from observations for almost 35 years, which I am taking from the previously cited work of Academician Wild, Die Temperatur-Verhältnisse des russischen Reichs /The Temperature Conditions of the Russian Empire/ (St. Petersburg, 1881). They are given in Celsius degrees for the months in new style.

Jan.	Feb.	Mar.	Apr.	May	June	July
-42.8	-37.3	-23.7	-9.6	4.5	14.6	18.8

Aug.	Sept.	Oct.	Nov.	Dec.	Year
15.5	5.6	-9.1	-29.8	-40.5	-11.2

The extremes are: maximum 38.8 C. = 31.0 R. in July, and -62.0 C. = -49.6 R. in January. The terrible cold of winter therefore corresponds to a very intense heat during the short summer. In order to characterize this specifically Siberian climate still more, I want to point out that my native city, Riga, which lies at about 57° latitude and has a mean temperature of +6.0 C., is somewhat cooler than Jakutsk in July, and the maxima are never equivalent to the Siberian ones.

241 I can say with complete justice that it is to this eccentric climate that Jakutsk owes its rich harvest of almost all the field crops found farther south. In any case it took great courage to count on such success here and to obtain it by force through years of toil /252/ against all prejudices, and I therefore regard it as my duty to preserve the memory of the name of the first local farmer, which we discovered. He was a discharged junior clerk, later community clerk, Konstantin Andréjewitsch Bolkáschin, whose first efforts are said to date from the year 1819. Not until 1825, on a piece of land worked by his own hands with a hoe, which he sowed with two poods of barley, did he succeed in getting a twenty-fold yield and through that aroused

232 the swelling fall off of you like the teeth in my mouth" (Ehigi
233 ispikkit min tiihim kurduk tystyn!).

"Tataar buolar"--the itch, mange; they cure this by smearing the ulcers with resin, or by washing them thoroughly with a decoction of alder bark.

In cases where reindeer break their bones the natives give them water containing copper filings, and then place their hands first on the mouth of the reindeer and then on the place where the break is, thinking that the copper will go there and act as a binding agent, like solder.

136 It must be mentioned that almost all the illnesses of the reindeer
232 occur in the summer. Not a few of the diseases are brought to the
233 reindeer by the mosquitoes and the gadflies, which are [205] a real scourge. The mosquitoes in the lower parts of the tundra surround the reindeer in clouds and suck their blood; they exhaust the reindeer and even worry them to death.

The reindeer gadflies--irgekte--are of two types: those which hang around the reindeer's hide in general and those which hang around the noses of the reindeer. The gadflies of the former type (Oedemagena taranti) appear in July, prick a little hole under the skin of the reindeer, and lay their eggs there. Larvae develop from these eggs, and they live under the reindeer's skin until May of the following year, at which time they drop out onto the moss and turn into gadflies. The hide of a reindeer which has been pierced by a gadfly in this fashion is usually covered with many swellings in the form of small lumps about as big as a nut, and the whole hide looks like a sieve and is no good for clothing. In the spring the Dolgan squeeze the larvae out of the lumps on those reindeer which have been hard hit by the gadflies, but it goes without saying that where there is a large number of reindeer so affected this method of treatment is not very useful. At the time when the larvae are coming out some of the reindeer are completely covered with sores and die from them. The gadflies of the latter type (Cephe homgiatropme) lay their eggs in the nasal cavities of the reindeer; from here the larvae penetrate into the throat of the reindeer, where they pass the winter; in the spring great numbers of them are thrown out when the reindeer coughs, which he does as a result of the irritation in his throat. The only effective method of dealing with the mosquitoes and the gadflies is to move the herds to a colder, more northerly region, where the climatic conditions prevent the insects from living.